REMARKS/ARGUMENTS

I. Status of the Claims

Claims 1-40, 48-54, 55-57, and 59-90 are pending.

II. The Present Amendments

No new matter has been added by the present amendments.

The recitations of solid supports in claims 1, 15, 25, 50 and 64 as amended are supported throughout the specification, including page 9, lines 26-29.

III. The Office Action and Responses Thereto

The Office Action rejects claims 1-40 and 48-90 over two new references. Applicants amend in part and traverse. The rejections and Applicants' responses are set forth below.

A. Rejection of the Claims as Anticipated by Gustafson

Claims 1-19, 22-30, 38-40, 48-69, 71, 73-80, 88, and 89 are rejected as anticipated by Gustafson, U.S. Patent No. 5,478,527 ("Gustafson"). According to the Action, the claims listed are broad enough to be encompassed by the reference. Applicants amend in part and traverse.

Applicants respectfully note that it is a little hard to discern exactly what Gustafson teaches with respect to the present invention. The passage on which the Action relies is at column 9, lines 11-19, which commences:

> The materials from which the dipstick 32 are made are preferably non-binding to minimize non-specific binding during the binding assay procedure. Suitable dipstick surface materials include polyolefins such as polyethylene and polypropylene, hydrophilic polysilicon and polysiloxane polymers, and the like.

Applicants believe that the Examiner would agree that this portion of Gustafson would not seem itself to have applicability to the claims under examination, which relate to coating a solid support with a non-stick material.

The passage continues:

> Also suitable are polymers which have been treated to render the surfaces non-binding to proteinaceous materials.

This passage appears to be more related to the claims under examination. It does not, however, teach or suggest any particular way to "treat" the polymer to render the surface non-binding to proteinaceous materials. Based on this passage alone, the practitioner might well be at a loss to know how to treat a polymer to render it non-binding to proteins. Read after and in light of the present disclosure, it is understandable if the Action reads this passage as suggesting treating the polymers with a non-stick coating. But, as of this point in the text, Gustafson has not actually taught any particular way to treat the polymers to render them non-binding, including the use of non-stick coatings.

Gustafson continues with the following sentence:

> The silanes can be applied to the silicon dioxide surface in a vapor phase, for example.

This sentence is used by the Action to show that Gustafson anticipates coating the polymers with a non-stick coating, and specifically the use of silane of polysilane polymers. See, Action at page 3, bottom paragraph. There are, however, several problems with this analysis. First, the sentence does refers to applying silanes to the silicon dioxide, not to the dipstick surface. The paragraph in which the sentence appears is a description of Figure 3, which shows a cross-section of a dipstick having mounted thereon a plurality of insoluble supports having a diffraction grating design of binding reagent on it. See, column 9, lines 4-10. The paragraph then differentiates between the dipstick body, labeled as 32 in Figure 3, and the insoluble supports with the diffraction grating, labeled as element 34. *See, id.*, and Figure 3. As noted earlier in the paragraph, the dipstick can be, for example, a polyolefin such as polyethylene and polypropylene, a hydrophilic polysilicon, or a polysiloxane polymer. By contrast, Gustafson refers consistently to silicon dioxide as the transparent layer of the diffraction gratings. See, e.g.,

column 5 at lines 17-35. Thus, the critical sentence relied on by the Action relates to treatment of the diffraction grating surface rather than the dipstick, which does not appear to be anywhere stated to be silicon dioxide.

Second, the sentence refers to "The silanes." As an initial matter, Applicants respectfully remind the Examiner that "silane" is a specific compound, while "silanes" refers to derivatives of that compound, some of which are sticky and some of which are non-sticky. See, Applicants' Amendment dated October 25, 2002, at pages 4-5. The use of the definite article "the" by ordinary rules of construction should be a reference back to silanes discussed earlier in the Gustafson specification. But, a word search of the Gustafson specification reveals that every other mention of silanes in the Gustafson specification refers to aminosilanes used specifically to make the surface of the transparent layer of the diffraction grating able to bind protein. For example, column 5 of Gustafson states, at lines 27-30: "The silicon dioxide layer can be any optically flat plate of transparent glass containing silicon dioxide, preferably treated with a suitable silane to increase its protein binding capacity." (Emphasis added.) See also, column 6, lines 16-40, which provides a paragraph's worth of examplar aminosilanes, and Examples 3, 5, 6, and 8 of the specification, which show the use of an exemplar aminosilane to render a silicate surface able to bind a monoclonal antibody.

Under ordinary rules of construction, therefore, the sentence of Gustafson relied on by the Action refers to aminosilanes, which render surfaces capable of binding proteins, rather than the non-sticky compound known as silane. Applicants respectfully remind the Examiner that a patent can anticipate only that which it enables, and the critical sentence arguably enabling the person of skill to practice the claims currently under examination is at best garbled and at worst teaches away from using non-stick coatings. Accordingly, Applicants respectfully submit that the Gustafson reference does not anticipate the use of non-stick coatings on dipsticks, microtiter plates, membranes or beads.

Finally, Gustafson clearly does not anticipate claim 25, which as amended recites the use of non-stick coatings on a bead, a membrane, or a particle. Gustafson is concerned with the formation of diffraction gratings, which are necessarily on optically flat surfaces. See, e.g., column 5 at 27-29 and 35-37. Therefore, it does not teach or suggest the use of non-stick

coatings on non-optically flat surfaces such as beads, membranes, or particles, and cannot anticipate them.

Reconsideration and withdrawal of the rejection are respectfully requested.

B. Rejection of the Claims as Anticipated by Wilding

Claims 1, 10, 13-17, 20-22, 26, 27, 29, 31-36, 38-40, 48-50, 62-67, 70-72, 81-87 and 90 are rejected under §102(b) as anticipated by Wilding, U.S. Patent No. 5,587,128 ("Wilding"). According to the Action, Wilding teaches a method of reducing cross contamination of an assay reagent solution comprising contacting a solid support with a non-stick coating. Applicants amend in part and traverse.

Wilding relates to the use of "mesoscale flow systems," that it refers to as "small, mass produced, typically one-use devices (sometimes referred to herein as "chips") for conducting a reaction." Column 4 at lines 10-12. Wilding's "chips" comprise a substrate engineered to contain a reaction chamber in which the reaction can occur, and inlet and outlet ports to introduce and remove reagents. See, column 4, lines 14-30. The surface of the reaction chamber can be coated to diminish inhibition of an amplification reaction, Wilding, col. 5, lines 45-50. Thus, Wilding teaches the use of coatings in the context of a one-piece chip in which to conduct reactions. Moreover, Wilding is concerned only with possible inhibition of the amplification reaction by the walls of the substrate chamber. It does not recognize the problem of carry over of reagents nor provide a solution to that problem. For example, while Wilding mentions magnetic beads can be provided along with the mesoscale flow system to bind amplified polynucleotides (*see*, Wilding at col. 9, lines 35-52), there is no recognition that reagent carry-over on the beads would pose a problem, and of course no suggestion to coat the beads to solve that yet-unrecognized problem.

Claims 1, 15, 50 and 64 have been amended to recite particular embodiments. None of the embodiments are taught or suggested by Wilding's treatment of self-contained chips. Thus, claims 1, 15, 50 and 64 as amended and the claims dependent thereon are respectfully submitted to be free of the rejection. Reconsideration and withdrawal are respectfully requested.

C. Rejection of Claims as Obvious

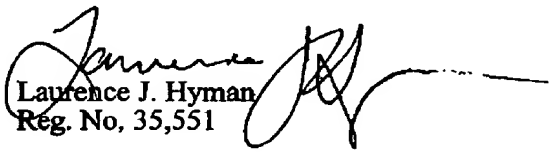
Claims 37 and 87 are rejected under §103(a) as obvious over Gustafson in view of Van Ness, Nuc Acids Res 19(19):5143-5151 (1991). According to the Action, Gustafson teaches the basic methods of the invention, while Van Ness teaches the use of chaotropes. Applicants respectfully note that the independent claims have been amended to be free of Gustafson. Since the obviousness rejection relies on combining Van Ness with Gustafson, and since the claims have been amended to be free of Gustafson, it is respectfully submitted that the claims as amended are also free of the combination with Van Ness. Reconsideration and withdrawal of the rejection in light of the amendments and the discussion herein are respectfully requested.

CONCLUSION

All claims now pending in this Application were allowed in the Office Action dated July 2, 2004. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, she is invited to telephone the undersigned at 415-576-0200.

Respectfully submitted,



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